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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,433	10/08/2003	Mark Daniel Gorman	132661	6732

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/681,433

Applicant(s)

GORMAN ET AL.

Examiner

Jennifer C McNeil

Art Unit

1775

ed

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 14-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-13, drawn to a turbine engine component, classified in class 428, subclass 698.
- II. Claims 14-32, drawn to a method for forming a protective coating system, classified in class 427, subclass 252.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by a materially different process such as forming the coating system in a mold and applying the system to the substrate in a lift-off process.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Don Hasse on March 4, 2004 a provisional election was made with traverse to prosecute the invention of Group I claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 refers to the protective coating having at least about 50 wt% Pt or Rh, or mixtures thereof.

Claim 7 is dependent upon claim 6, which requires at least two metals for the protective layer. Is claim 7 to be interpreted as having at least two metals, and additionally at least about 50% wt of Pt and/or Rh?

Please clarify.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, and 8-12 are rejected under 35 U.S.C. 102(a) as being anticipated by Nagaraj et al (US 6,627,323). Nagaraj teaches a thermal barrier coating for a turbine component. The component includes a superalloy substrate, and the coating comprises a bond coat (24), a layer of alumina (28), a layer of zirconia (26), a second layer of alumina (32), a layer of a platinum group metal (34), and a third layer of alumina (36), successively.

Art Unit: 1775

Regarding claims 2-4, and 9-11, the second layer of alumina is considered the barrier layer, and may be 0.5-50 microns thick.

Regarding claim 5, the method of deposition of the layer is not considered to structurally define the coating over the prior art.

Regarding claim 8, an additional layer may be provided on the third alumina layer. This layer may comprise tantala, considered a ceramic thermal barrier.

Regarding claim 12, the metal layer may consist essentially of platinum; therefore it is considered to be more than 50% of the layer composition.

Claims 1-3, and 5-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagaraj et al (US 5,427,866). Nagaraj teaches a protective coating for turbine components. The component includes a substrate comprising a nickel or cobalt-base superalloy, and the coating comprises a bond coat (34), and alumina layer (36), and a metal layer of Pd, Pt, and/or Rh (38).

Regarding claims 2 and 3 (and 9), the alumina is considered the barrier layer.

Regarding claims 5, 15, and 16, the alumina is thermally grown.

Regarding claims 6 and 7, the metal layer may be formed of Pd, Pt, Rh or combinations thereof (claim 1). The metal layer can have a thickness of 0.0001-0.001 inches (2.54-25.4 microns).

Regarding claim 8, a ceramic thermal barrier layer (40) is deposited over the metal layer.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagaraj et al (US 5,484,263). Nagaraj teaches a reflective coating system including a superalloy substrate, a first layer of alumina (14), and a reflective layer of Pt or Pt-Rh.

Regarding claims 2-4, the alumina is considered the diffusion layer and can have a thickness of 0.1-25 microns.

Art Unit: 1775

Regarding claim 5, the method of deposition of the layer is not considered to structurally define the coating over the prior art.

Regarding claims 6 and 7, the reflective layer may comprise an alloy of Pt and Rh and have a thickness of up to about 10 microns.

Claims 1-3, and 5-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Allen et al (US 6,652,987). Allen teaches a reflective coating for a turbine engine component. The component comprises a nickel or cobalt based superalloy, and a coating comprising a bond coat (24), a ceramic oxide layer (26'), a noble metal layer (30'), and an additional ceramic oxide layer (26").

Regarding claims 2, 3, and 9, the ceramic oxide layer may be zirconia.

Regarding claim 5, the method of deposition of the layer is not considered to structurally define the coating over the prior art.

Regarding claims 6 and 7, the metal layer may comprise Pt, Pt alloys, Pd, Pd alloys, Rh, Rhodium alloys, Ir, Ir alloys, and mixtures thereof. The metal layer can have a thickness of 0.5-25.5 microns.

Regarding claim 8, ceramic oxide layer (26") is considered a thermal barrier layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagaraj et al (US 5,427,866). Nagaraj teaches a coating system as discussed above, but does not give a specific

Art Unit: 1775

thickness of the thermally grown alumina layer. Nagaraj does teach that this layer is thin. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art to provide the alumina layer of Nagaraj with a thickness sufficient to provide a layer that is sufficiently adherent to the underlying bond coat.

Regarding claims 12 and 13, as stated above, Nagaraj '866 teaches a metal layer of Pt, Rh, Pd and combinations thereof.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer McNeil
Primary Examiner
Art Unit 1775
June 2, 2004